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A . Report Title: The Role of Airpower in Promoting Regional Airspace Cooperation

B. DATE Report Downloaded From the Internet 3/17 /98

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D. Currently Applicable Classification Level: Unclassified

E. Distribution Statement A: Approved for Public Release

F. The foregoing information was compiled and provided by:
DTIC-OCA, Initials: UM **Preparation Date:** 3/18/98

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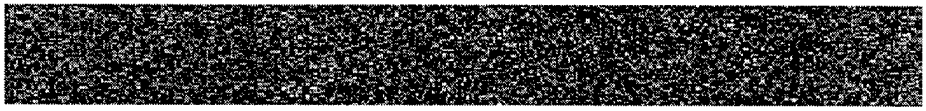

The Role of Airpower in Promoting Regional Airspace Cooperation

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The end of the Cold War and changes in Central and Eastern Europe at the end of the 1980s created a new role for armed forces, not only in Europe but also around the world. Mutual cooperation replaced confrontation.

The Czech Republic ranks among those Central and Eastern Europe nations which have made every effort to incorporate themselves into standard European structures. At the same time, the Czech Republic realizes, in the area I am going to talk about, an extensive program of Europe-wide and regional cooperation and has joined the Regional Airspace Initiative Program, prepared by the United States in 1994. In the Czech Republic, this program will be implemented through the program Air Sovereignty Operation Center (ASOC). I want to recall that President Clinton came up with this initiative for the first time in Prague in 1994 when he met President Havel.

The Czech Republic national defensive strategy, based on historical experience, military-political situation, economic possibilities of our country, potential threats, and new means of conducting armed conflicts, sets the fundamental tasks of the Army of the Czech Republic. The Czech Air Force has an important mission in this strategy. One of the objectives of the Czech Air Force is to enhance regional airspace cooperation. This objective (the achieving of which is primarily an economic problem) must have a structure capable of providing:

- Fulfillment of tasks for the country's defense within a coalition grouping, independently only to a limited extent in a local conflict (with limited independence in a local conflict),
- Fulfillment of alliance commitments within the coalition defense, and
- Compliance with international commitments in peace operations.

The priority of Air Force for the immediate future is the gradual achievement of organizational, operational, and technological interoperability and compatibility with NATO member states and all the Czech Republic neighbors in the areas of creating interconnected:

- Military and civil air traffic control (ATC) and support systems,
- Air sovereignty systems, and
- Air search and rescue (SAR) services.

In our opinion, these three basic systems can become the foundation of regional cooperation not only in Central Europe, but all of Europe. I am very glad that the US supports this initiative with specific programs.

Allow me to discuss in more detail these three systems opening new possibilities of stability, support, confidence, and cooperation. I believe the Czech Republic is placed in the foremost position among the states of Central and Eastern Europe participating in this process not only in terms of organizational but also technical and technological points of view.

Air Traffic Control Systems

The extensive growth of air traffic in Europe in the 1980s and the change of the political situation have also brought changes in attitude towards the use of airspace in the region of Central and Eastern Europe. As for contemporary integration within Europe, we have to consider as well the different levels of these services--not only from the technical but also from the legislative point of view--in two parts of Europe which had been previously separated.

In 1990, the European Civil Aviation Organization (ECAC) adopted the European Air Traffic Control Harmonization and Integration Program (EATCHIP). The Program is administered and coordinated by the European Organization for the Safety of Air Navigation (EUROCONTROL, NATO/CEAC). The Czech Republic has been participating in their activities since 1992. It has joined established compatible systems within the European region in a high degree. The system requirements and coordination of the whole project have been provided by the Army of the Czech Republic in cooperation with the Civil Aviation Department of the Ministry of Transport of the Czech Republic, based on studies and projects of the Harmonized Integrated System.

The project includes the following key areas: radar coverage, air-to-ground communications, ground-to-ground communications, navigation systems, ATC authorities, centralized flow management service, airspace organization, basic aerodrome equipment, personnel, meteorological service, working environment and ecology, and a model ATC project for an aerodrome used in common.

In 1992, the government approved a pertinent program and allocated necessary money even beyond the scope of the military budget. This provision enabled the implementation of individual tasks in compliance with International Commercial Aviation Organization (ICAO) recommendations.

To harmonize air traffic control services in Europe in the years 1995 - 1998 and into the beginning of next millennium means integration to standardize all areas connected with one another (methods of control, technical equipment, training, and legislation) to meet the ICAO requirements. The whole concept is, in accordance with ICAO recommendations, divided into the following phases:

Phase I, 1990-1998. Adopt and harmonize current national systems.

Phase II, 1995 - 2005. Begin with the introduction of new technologies (communications, navigation, radar tracking), and step-by-step integration of military and civil ATC systems at an area level.

Phase III, from the year 2000 on. Achieve complete integration of land-based systems and airborne-ground systems.

At present, the Czech Republic has been accomplishing the first and second phases of the program in the following areas: air traffic control, on-board systems installed, radars and radar displays, radio-technical means and support, meteorological service, integration links with air sovereignty system, and legislation.

Air Sovereignty System

The Czech Republic has been building the Air Sovereignty System in connection with the implementation of the ATC program. This system has been built as an integral part of the entire system of airspace control. It makes use of procedures and techniques identical with the procedures and techniques of military and civil ATC systems being established.

The Air Sovereignty System is the basis of the architecture of the system of command, control, and

reconnaissance of air forces. The foundation of the system on both basic levels is supposed to be built by the year 2000 on national and regional levels.

The Czech Republic has joined in building the Air Sovereignty Operation Center (ASOC) program. The program results from the Regional Airspace Initiative that was offered to the Central European countries (the Czech Republic, Hungary, Poland, and the Slovak Republic) by the US in 1994. The Czech Republic assumes that the implementation of the program at this stage will enable the regional exchange of information on the airspace situation with adjacent states equipped with the ASOC technology and the exchange of information with a component NATO operational center (ICAOC or CRC). We also assume the ASOC program will be only first stage. In the future (after the year 2000), it will be surely possible to extend it by the exchange of information on the airspace situation received from airborne means used for warning and control (AWACS), as well as the ability to control weapon systems (aircraft and antiaircraft missiles) from a landbased ASOC center. The extension of these ASOC capabilities will be connected with the process of taking other members into the NATO structure.

At the same time, the ASOC will enable the exchange of information on the airspace situation among the national systems of those nations equipped with this technology. The Czech Republic national system will be made up of an NCC (Navigation Control Center), two CRCs (Control and Reporting Centers), and in peacetime will be supported by deployed radars and passive tracking systems.

The Air Sovereignty System will be interconnected with harmonized (and then integrated) civil and military ATC systems.

Passive Tracking System VÌRA

VÌRA, the passive tracking system, is one of the latest elements of the ATC system as well as the Air Sovereignty Systems. At the same time, it is a contribution of the Czech Republic in the field of up-to-date systems and technologies not only to the system of airspace control: It is also one of the possible ways of using a reserve system of multiradar processing, which is a very convenient investment.

The Passive Tracking System VÌRA (PSSV) is made up of three receivers (distant from one another by tens of kilometers) and a CPS (central processing station) which, according to time differences of receiving an SIF signal by single antennas, determines the aircraft position and provides automatic route tracking. The PSSV evaluates SIF replies (secondary airborne transponders) of all interrogations transmitted by ground SSR (ground interrogators) in 1,2,3/A, C modes (if need be, in mode S). The output information is integrated into uniform multi-radar information distributed within the system to all command and control posts.

Basic characteristics of the Passive Tracking System VÌRA are:

- It is designed both for ATC as a standby and control system and in the next stage also for the Air Sovereignty System.
- The range of 450 km is limited only by radio horizon.
- It can automatically track 200 aircraft every five seconds.
- It is capable of a high accuracy of measuring position (tens and hundreds of meters).
- It operates as a passive system on the basis of receiving signals from SIF/SSR transponders.
- It is interfaced with the LETVIS/SEKTOR system.

Air Search and Rescue

The SAR is also a component of the entire ATC system. It accomplishes its missions for the benefit of all users of the system. In case of an air incident, search and rescue operations are coordinated by the

SAR Center, which is linked with similar centers in countries adjacent to the Czech Republic. The system is connected to the Integrated Rescue System of the Czech Republic. International exercises of helicopter units and TRIOSAR rescue teams are organized periodically with the Air Force of Federal Republic of Germany and the Air Force of the Polish Republic.

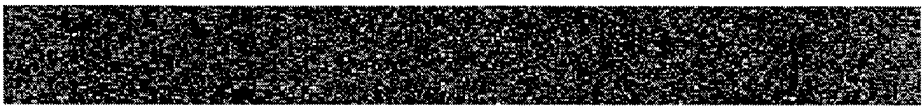
Hardware and Software

The basis of the whole technology of the Air Traffic Control and Support System and the system of collecting, processing, and distributing information on the air situation in the national Air Sovereignty System is our computer complex called LETVIS/SEKTOR.

The main tasks of this complex are to provide control and safety for air traffic, coordinate military and civil ATC, ensure air sovereignty of the Czech Republic, and create a realistic ATC training environment for Air Force personnel.

The LETVIS/SEKTOR system enables radar and procedural ATC, coordination among sectors and areas, receiving and delivering military and civil flight plans, and execution of mission of special military services closely connected with ATC integration.

The process of integration of European ATC and use of airspace is an irreversible reality. The cooperation among neighboring nations in the use of air sovereignty systems strengthens mutual confidence as well as the security of individual nations. This is a vital step into the twenty-first century.



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